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Lenzitopsis oxycedri (*Thelephoraceae, Basidiomycota*): newly recorded for the Balkan Peninsula

Mitko Karadelev[1*], Katerina Rusevska[1] & Oliver Avramovski[2]

[1]*Ss Cyril and Methodius University, Faculty of Natural Science and Mathematics, Institute of Biology, Arhimedova 5, 1000 Skopje, Macedonia*

[2]*Galicica National Park, Galicica bb, 4600 Ohrid, Macedonia*

* Correspondence to: *mitkok@pmf.ukim.mk*

Abstract — *Lenzitopsis oxycedri* is reported from the Balkan Peninsula for the first time, growing in a Mediterranean juniper forest in the Republic of Macedonia. This very rare species was collected on living branches of *Juniperus foetidissima* from Galichica National Park, in the southwestern part of the country.

Key words — wood-decay fungus, *Thelephorales*, stinking juniper

Introduction

Malençon & Bertault (1963) described *Lenzitopsis* as a monotypic genus in the *Thelephoraceae,* where it has an isolated position. *Lenzitopsis oxycedri* is characterized by perennial, resupinate to effuse reflexed basidiocarps, a monomitic hyphal system, and globose to subglobose spores that are finely warted and yellow to pale brown in KOH. Recently Zhou & Kõljalg (2013) described a second species in the genus, *Lenzitopsis daii* L.W. Zhou & Kõljalg, which differs by its annual basidiocarps, amyloid spores, and growth exclusively on *Juniperus chinensis* L.

The original description of *L. oxycedri* is based on a specimen growing on *Juniperus oxycedrus* L. in Morocco (Malençon & Bertault 1963). The first European records are from Guadalajara, Spain, where the species was found growing as a saprobe on *J. oxycedrus* and *J. thurifera* L. (Garcia-Manjon & Moreno 1981). Ryvarden (1991: 174) proposed *Lenzitella* and *L. malenconii* as replacement names for *Lenzitopsis* and *L. oxycedri*, which he mistakenly believed to be invalidly published; but because he included the valid Malençon & Bertault names in synonymy, both *Lenzitella* and *L. malenconii* are superfluous and

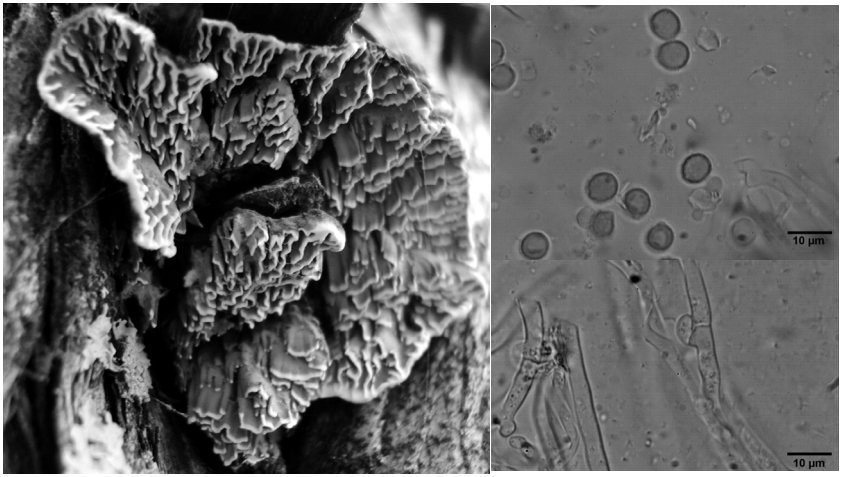
Figure 1. Geographical distribution of *Lenzitopsis oxycedri*.

illegitimate. Ryvarden's (1991) designation of a Spanish collection as "holotype" (to replace the original Moroccan material that is apparently lost) constitutes a neotypification of *L. oxycedri*. *Lenzitopsis oxycedri* has been reported from China (Dai et al. 2007), Italy (Bernicchia 2000), and Turkey, where it was collected twice in Thermessos National Park, Antalya, on branches of *Juniperus foetidissima* Willd. (Doğan et al. 2007). This paper extends the distribution to Macedonia, where *L. oxycedri* occurs on *J. foetidissima*.

Materials & methods

Collections were made during springtime (May) 2010 from *Juniperus–Quercus* forests in Galichica National Park, Republic of Macedonia. The forest primarily consists of *J. foetidissima* mixed with *Quercus* spp., but at certain spots *J. foetidissima* forms pure stands, sometimes intermixed with small stands of *J. excelsa* M. Bieb.

For identification we used the descriptions of Ryvarden & Gilbertson (1993: 376, as *Lenzitella malenconii*) and Bernicchia (2005). The nomenclature follows Index Fungorum (http://www.indexfungorum.org/names/Names.asp 2012) and Mycobank (http://www.mycobank.org/Biolomics.aspx?Table=Mycobank 2012). The samples were examined using classical methods. Sections were mounted in Melzer's reagent and in 5% aqueous solution of potassium hydroxide (KOH). Measurements and photographs were taken from sections mounted in KOH (5%) and examined at magnifications up to 1000× with an LW scientific microscope. Specimens are deposited in the Macedonian Collection of Fungi (MCF), within the Mycological Laboratory (Ss Cyril and Methodius University, Institute of Biology, Faculty of Natural Sciences and Mathematics).



Figures 2–4. *Lenzitopsis oxycedri* (MCF 10/11631). 2. Basidiocarp (left). 3. Spores (above right). 4. Generative hyphae with clamps (below right).

Taxonomy

Lenzitopsis oxycedri Malençon & Bertault, Bull. Soc. Mycol. Fr. 79: 82 (1963)

Figs 2–4

≡ *Lenzitella malenconii* Ryvarden, Syn. Fung. 5: 174 (1991), nom. illegit.

Type: Spain, Guadalajara, Tamajón, on living *Juniperus thurifera*, 26.4.1991, G. Moreno & L. Gonzaga (neotype, AH; isoneotype, O; Ryvarden 1991).

Basidiocarp perennial, effuse reflexed to pileate, projecting up to 2–3 cm wide, and 2–8 mm cm thick at base, corky to fragile when dry. Pileal surface dark brown, velutinate, azonate, later becoming glabrous and almost black. Hymenophore lenzitoid to lamellate, lamella 1–3 per mm, sinuous to raduloid or hydnoid with flat teeth, approximately 0.5 to 1 mm between the lamellae or spines, at first whitish, then ochraceous to pale brown. Context pinkish buff, corky, up to 2 mm thick, lamella concolorous with context, corky, up to 6 mm deep.

Hyphal system monomitic, generative hyphae with clamps, hyaline in trama and context, pale brown in tomentum, 3–5 µm wide, slightly thick-walled, sparingly branched, some irregular crystals present on hyphae. Cystidia absent.

Basidia with 4 sterigmata, at first clavate but elongating considerably to sinuous tube-like organs, 40–80 µm long, with a basal clamp. Basidiospores globose to subglobose, pale brownish, thick-walled, echinulate, often with small inner crystals of pigment, negative in Melzer's reagent, 5–6.9 × 4.9–5.9(–6.9) µm, L = 5.96 µm, W = 5.52 µm, Q = 1.08.

Specimens examined: **MACEDONIA, Galichica National Park:** Bitolski Pat, 1200 m a.s.l., *Juniperus foetidissima* forest with *Quercus* spp., at the base of branches of living *J. foetidissima*, 01.05.2010, Mitko Karadelev (MCF 10/11634); Zli Dol, 1400 m a.s.l., *J. foetidissima* forest with *Quercus* spp., at the base of branches of living *J. foetidissima*, 01.05.2010, Mitko Karadelev (MCF 10/11633); Velgoshti vill., 800 m a.s.l., pure *J. foetidissima* forest, at the base of branches of living *J. foetidissima*, 01.05.2010, Mitko Karadelev (MCF 10/11631).

Discussion

Macroscopically *Lenzitopsis oxycedri* resembles *Gloeophyllum sepiarium* (Wulfen) P. Karst. and *Daedaleopsis tricolor* (Bull.) Bondartsev & Singer in having a lamellate hymenophore. *Gloeophyllum sepiarium* most commonly grows on conifers and is yellowish to rusty brown in color, whereas *D. tricolor* develops on broadleaved trees, especially *Salix*. Both species have a dimitic hyphal structure and smooth basidiospores.

Since *L. oxycedri* is known from only a few localities in five Mediterranean countries and China (Figure 1), it is considered a very rare white rot saprobe or parasite that is apparently restricted to junipers. The Chinese specimens were collected from living junipers in Beijing and Sichuan Provinces (Dai et al. 2007), while elsewhere it occurs on *J. oxycedrus* in Morocco and Italy (Malençon & Bertault 1963, Bernicchia 2000, 2005), *J. oxycedrus* and *J. thurifera* in Spain (Garcia-Manjon & Moreno 1981), and *J. foetidissima* in Turkey (Doğan et al. 2007). Our specimens were also collected from *J. foetidissima* at three different sites within Galichica National Park in southwestern Macedonia. *Lenzitopsis oxycedri* may well prefer *J. foetidissima* in the eastern Mediterranean (Macedonia and Turkey), for it is found exclusively on *J. foetidissima* even in mixed juniper forests containing both *J. excelsa* and *J. foetidissima*.

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